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Virginia Sea Grant

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*Report of the
Virginia Graduate Marine Science Consortium
The Virginia Fishery Resource Grant Program: 2006*

*To the Governor and
the General Assembly of Virginia*



HOUSE DOCUMENT NO.

*Commonwealth of Virginia
Richmond
2006*



This report was produced by the Virginia Sea Grant College Program, which is administered by the Virginia Graduate Marine Science Consortium, through funds appropriated by the Virginia General Assembly for the Fishery Resource Grant Program.



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VIRGINIA GRADUATE MARINE SCIENCE CONSORTIUM

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Executive Summary

Report to the Virginia General Assembly on Implementation of House Bill No. 1634 (February 6, 1999)- "The Fishery Resource Grant Fund"

December 2006

Executive Summary

The Virginia Fishery Resource Grant Program (VFRGP) was initiated by the Virginia Legislature in 1999 to "protect and enhance the Commonwealth's coastal fishery resource through the awarding of grants." Since its inception, the VFRGP has been administered by the Virginia Graduate Marine Science Consortium which has established the Advisory Board described in the enabling legislation; implemented proposal solicitation, review and selection procedures that avoid conflict of interest; and awarded funds for fifty-seven (57) projects since the VFRGP was initiated, five of which were begun since January, 2006.

The projects initiated in 2006 account for \$130,018 of the appropriated \$210,000. Program administration costs were \$42,603 during 2006. Uncommitted 2006 funds plus the \$210,000 appropriated for FY2007 will be used to support new project proposals that have been solicited by a Request for Proposals issued in late 2006 for project initiation in early 2007.



Fisheries Resource Grant Program Report 2005

Report to the Virginia General Assembly on Implementation of House Bill No. 1634 (February 6, 1999) - "The Fishery Resource Grant Fund"

December 2006

Background

The **Virginia Fishery Resource Grant Program (VFRGP)**¹ was initiated by the Virginia Legislature during the 1999 session to "protect and enhance the Commonwealth's coastal fishery resource through the awarding of grants in four areas":

1. New fisheries equipment or gear;
2. Environmental pilot studies on issues including water quality and fisheries habitat;
3. Aquaculture or Mariculture of marine-dependent species; and
4. Seafood technology.

The VFRGP is based on the simple approach that experienced fishermen can develop effective ideas for improving their productivity or reduce costs. Typically, attempting such an idea or change entails a cash outlay that is too large a risk for an individual fisherman to justify, particularly if benefits from the idea would also be gained by others in the industry. The VFRGP is in place to fund just those costs associated with that change in a fisherman's operation so that he or she does not bear all of the risk and expense for improving industry productivity.



As in the original appropriation, funding for activity during 2005 was provided to the University of Virginia to conduct the VFRGP through the Virginia Graduate Marine Science Consortium (the "Consortium")². The Consortium invests in the ideas generated by the fishing public through fair and competitive methods. To be eligible under the VFRGP, a proposal must involve Virginians who are active participants in a fishing industry; that is, commercial fishing activities related to coastal or offshore fishery resources, aquaculture/mariculture, or the processing or handling of fishery products.

Implementation: July 1999 - November 2006

As noted in the inaugural VFRGP report to the General Assembly, the 1999 legislation specified that the Consortium advertise the availability of grant funds and solicit, receive and review grant applications. The legislation established a seven member Fishery Resource Grant Advisory Board that would assist the Consortium in establishing

¹ House Bill No. 1634. "A Bill to amend the Code of Virginia by adding in Chapter 2 of Title 28.2 an article numbered 8, consisting of sections numbered 28.2-245, 28.2-246, and 28.2-247, relating to the establishment of the Fishery Resource Grant Fund."

² See the initial "Report of the Virginia Graduate Marine Science Consortium - The Virginia Fishery Resource Grant Program: 1999" to the Governor and the General Assembly of Virginia, October 2000.

research priorities and reviewing proposals submitted.³ The initial meeting of the mandated Fishery Resource Grant Program Advisory Board was convened July 9, 1999 at the Virginia Institute of Marine Science for the purposes of establishing the charge and duties of the Advisory Board in accordance with the legislation which established the VFRGP, and for gaining Board input for the VFRGP documents that were to be used for soliciting, selecting, and administering projects.⁴

Overall, the VFRGP has continued the same organizational oversight as that which manages a wide array of marine science proposal solicitation and review (i.e. the Graduate Marine Science Consortium). The Consortium also makes the final decisions regarding project selection in the VFRGP.

Building upon the legislation, a management structure was established for the VFRGP consisting of Dr. William DuPaul, Coordinator of the Virginia Sea Grant Marine Advisory Program, serving as the chairman of the Advisory Board. Dr. DuPaul answers to the Consortium director. A staff member of the Marine Advisory Program at VIMS was given responsibility for the day-to-day management of the VFRGP. This required allocating a small portion of the appropriated funds to partially support the person's salary and operating costs, as foreseen in the enabling legislation.

As a result of public notifications (Attachment A) and follow-up field meetings, Virginia fishermen submitted a total of 150 complete VFRGP proposals during the program's first seven

and one-half years of operation. The proposals have been extremely diverse; however, each is evaluated with standardized procedures, and each project idea is subjected to at least three out-of-state expert reviews, as noted in the VFRGP Principles of Operation.⁵ The outside reviewers complete their assessments using a standardized protocol and a uniform ranking system provided



by the VFRGP management. All such reviews are completed and submitted to VFRGP management prior to the Advisory Board project evaluation and selection meetings. As a result of the Board meetings, decisions have been

made to fund 57 individual VFRGP projects since the program's inception. Work on each project covers between 1 and 2 years, with some projects being completed within the past twelve months, depending upon the type of effort proposed.

Projects accepted for funding cover many areas of Virginia's commercial fisheries and include those listed below (the project status is noted in bold type). Brief summaries of the completed projects may be found in Appendix A.

³ The legislation specified that the Advisory Board consist of four members representing commercial watermen's associations, one member representing the aquaculture association, one member appointed by the Commissioner of Marine Resources, and one member appointed by the Director of the Virginia Institute of Marine Science (see Attachment A).

⁴ See Attachment B for a sample VFRGP news release and Attachment C for the Request for Proposals and a listing of the Advisory Board membership.

⁵ See Attachment D for the VFRGP Principles of Operation.

VFRGP Projects Funded in 1999-2005

FRGP 99-02. "Peeler Pot By-catch Reduction."

B. Knight – Saxis, Virginia

Duration: April 2000 – September 2000.

Funding: \$ 1,527. **Completed.**

FRGP 99-07. "Enhancement of Seed Oyster Recovery and Redeployment."

W.S. Magann – Chesapeake, Virginia

Duration: January 2000 – February 2001.

Funding: \$ 15,000. **Completed.**

FRGP 99-12. "Growing Soft Clams (*Mya arenaria*) Commercially in the Commonwealth of Virginia."

Ward Oyster Company – Ware Neck, Virginia

Duration: February 2000 – June 2001.

Funding: \$19,827. **Completed.**

FRGP 99-14. "Efficiency of Haul-Seine Cull Panels-A Comparison of Size Selectivity and Relative Release."

C.H. Hager – Hayes, Virginia

Duration: February 2000 – November 2000.

Funding: \$10,315. **Completed.**

FRGP 99-20. "Comparing Oyster Seed Growth Rates Using a Floating Upweller System ("FLUPSY") vs. traditional "Taylor" Floats."

R. Bloxom and J.T. Gardner – Wachapreague, Virginia

Duration: April 2000 – July 2001.

Funding: \$12,700. **Completed.**

FRGP 99-23. "Comparative Growth Rates of Four Strains of the American Oyster Using Two Grow-Out Methods."

A.T. Leggett – Wicomico, Virginia

Duration: March 2000 – September 2001.

Funding: \$21,851. **Completed.**

FRGP 99-24. "Feasibility of using Croakers to make Large Fillets or Fish Squares."

Wanchese Fish Company – Hampton, Virginia

Duration: February 2000 – December 2001.

Funding: \$19,500. **Completed.**

FRGP 99-29. "Development of Live Fish Markets Through the Use of New Live Holding Gear".

W. Cosby – New Kent, Virginia

Duration: February 2000 – November 2001.

Funding: \$18,470. **Completed.**



FRGP 99-30. "Comparisons of Hard Clam Culture Using 'Fenced In' Method vs. Under Nets."

L. Crewe – Newport News, Virginia

Duration: February 2000 – February 2002.

Funding: \$7,400.

Completed.

FRGP 99-34. "Artificial Reef Oyster Grow-out."

J. Hammer – Accomac, Virginia

Duration: March 2000 – December 2001.

Funding: \$29,700. **Completed.**

FRGP 99-37. "Comparative Study of Oyster Seed from Northern and Southern Hatcheries."

J.W. Merritt – Chincoteague, Virginia

Duration: March 2000 – March 2002.

Funding: \$25,026. **Completed.**



FRGP 00-01. "Enhancement of Seed Oyster Recovery and Redeployment."

W.S. Magann – Chesapeake, Virginia

Duration: March 2001 – May 2002.

Funding: \$17,125. **Completed.**

FRGP 00-03. "Raising Spot (*Leiostomus xanthurus*) Commercially for Sale as Live Bait in the Commonwealth of Virginia."

John Vigliotta – Gloucester, Virginia

Duration: February 2001 – November 2001.

Funding: \$19,827. **Completed.**

FRGP 00-05. "Control of Mud Blister Formation in Oysters."

Dennis Gryder – Hampton, Virginia

Duration: April 2001 – November 2002.

Funding: \$1,338. **Completed.**

FRGP 00-06. "Efficiency of Haul-Seine Cull Panels: A Comparison of Size Selectivity and Relative Release (second season)."

Christian Hager – Hayes, Virginia

Duration: February 2001 – November 2001.

Funding: \$16,496. **Completed.**

FRGP 00-08. "Comparative study of four popular grow-out methods."

Jack White – New Point, Virginia

Duration: February 2001 – December 2002.

Funding: \$27,340. **Completed.**

FRGP 00-10. "Portable Anchor Trap Net Designed with Large Mesh to Harvest Cow Nose Rays."

Douglas F. Jenkins, Sr. – Warsaw, Virginia

Duration: March 2001 – December 2004.

Funding: \$9,883. **Ongoing.**

FRGP 00-12. "Taylor Float Tidal Flow Increaser."

Bradley M. Knight – Saxis, Virginia

Duration: April 2001 – September 2003.

Funding: \$3,622. **Cancelled and Incomplete** due to damage from Hurricane Isabel.

FRGP 00-15. "Scallop Trawl Improvement Program."

Timothy B. Daniels – Newport News, Virginia

Duration: February 2001 – December 2003.

Funding: \$44,900. **Completed.**

FRGP 00-18. "Crab-Pot Buoy Marking Tags."

Diana Gadwill – Kinsale, Virginia

Duration: April 2001 – November 2001.

Funding: \$820. **Completed.**

FRGP02-01. "By-catch and discard reduction concerning selectivity and overall design in the black sea bass trap fishery."

James E. Dawson –
Chincoteague, Virginia

Duration: April 2002
– April 2003.

Funding: \$16,100.
Completed.



FRGP 02-02. "Growing oysters in suspended bags using ropes, anchors and buoys."

Curtis B. Jenkins – Warsaw, Virginia

Duration: May 2002 – December 2003.

Funding: \$4,445. **Completed.**

FRGP 02-04. "Virginia oyster replenishment via seed growing operation."

Robert W. Shanley – Cape Charles, Virginia

Duration: April 2002 – April 2003.

Funding: \$38,400. **Completed.**

FRGP 02-07. "Development of grow out techniques utilizing the water column in growing a non-native oyster (*Crassostea ariakensis*)."

Andy Drewer – Saxis, Virginia

Duration: April 2002 – June 2003.

Funding: \$22,008. **Completed.**

FRGP 02-09. "Tenderizing *Illex* squid so it can be marketed as food rather than bait."

Sam Daniels – Wanchese Fish Co., Suffolk, Virginia

Approved for funding but withdrawn at
Applicant's Request.

FRGP 02-20. "Growth rate of *Ariakensis* oysters in different environments."

Richard Wade Harding, Purcell's Seafood Inc.

– Burgess, Virginia

Duration: April 2004 – August 2004.

Funding: \$10,854. **Ongoing.**

FRGP 02-21. "Profitability analysis of benthic and substrate grow-out techniques for the Suminoe oyster (*Crassostrea ariakensis*) in Broad Bay, Virginia."

John C. Ludford, Diversified Marine Services

– Virginia Beach, Virginia

Duration: Funding: Project Status:
Not initiated.

FRGP 02-22. "Development of clear plastic containers for pasteurizing crab meat."

Johnny Graham, Graham & Rollins
Inc. – Hampton, Virginia

Duration: October 2002 – November
2004.

Funding: \$29,770. **Completed.**

FRGP 02-24. "Grow-out and marketability evaluation of triploid DEBY oysters."
Gustavo Calvo, Sweet Amalia Oyster Farm
– Hayes, Virginia
Duration: October 2002 – May 2004.
Funding: \$4,650. **Ongoing.**

FRGP 02-27. "Juvenile protection."
Willie Andrew Offield – West Point, Virginia
Duration: Funding: **Not initiated.**

FRGP 02-28. "Growing of the native and non-native oyster utilizing a long line system."
Tripp Smith, Shores and Ruark Seafood Co. – Sharps, Virginia
Duration: October 2002 – September 2004.
Funding: \$34,810. **Ongoing.**

FRGP 02-29. "Modular oil absorbent bilge pump."
Darryl Lilliston, Darryl Lilliston Seafood – Wachapreague, Virginia
Duration: November 2002 – December 2003.
Funding: \$13,117. **Completed.**

FRGP 03-01. "Validation of IQF freezing process to reduce *Vibrio vulnificus* to non-detectable levels in raw oysters."
Ron Bevins & Lake Cowart – Kinsale, Virginia
Duration: August 2003 – December 2003.
Funding: \$12,000. **Completed.**

FRGP 03-03. "Oyster farming cooperative program."
Shawn Stickler – Wake, Virginia
Duration: January 2004 – August 2004.
Funding: \$24,500. **Ongoing.**

FRGP 03-06. "Identifying the catch efficiency and incidental marine bird entanglements associated with internally floated and weighted lines on gill nets."
Millard Bryant – Montross, Virginia
Duration: June 2003 – June 2004.
Funding \$490. **Not initiated** at request of applicant.

FRGP 03-07. "Project management for Virginia Seafood Council's Economic Analysis of triploid *C. ariakensis* aquaculture."
Frances Porter & Tom Kellum – Newport News, Virginia
Duration: July 2003 – July 2004.
Funding: \$57,976. **Completed.**

FRGP 03-07-2. "Project Management for Virginia Seafood Council's Economic Analysis of Triploid *C. ariakensis* Aquaculture- Year 2"
Frances Porter & Tom Kellum – Newport News, Virginia
Duration: July 2004 – July 2005. Funding: \$53,649
Completed.



FRGP 04-02. "Whale Safe Gillnets" David C. Walker
– FV Nelson Seafood.
Chincoteague, Virginia
Duration: June 2004-June 2005. Funding: \$8,300.
Completed.

FRGP 04-03 "Intensive Culture of the Mudminnow (*Fundulus heteroclitus*) as Live Bait for Recreational Angling". Rudy Cashwell
– Eastville, Virginia
Duration: April 2004 – November 2006.
Funding: \$32,935. **Ongoing**

FRGP 04-07 "Sea Turtle Friendly Fish Trap".
Emory Lewis, Jr. – Fleeton, Virginia
Duration: June 2004 – December 2005.
Funding: \$21,900. **Ongoing.**

FRGP 04-14 "To Develop More Efficient Mechanisms to Harvest, Handle and Transport Catch". Wec Terry – Terry Brothers, Inc. Willis Wharf, Virginia
Duration: June 2004-June 2005.
Funding: \$30,380. **Ongoing.**

FRGP 04-10. *"Alternate methods for haul seine fishery to reduce possible impact on SAV beds."*
Matthew Bloxom – Poquoson, Virginia
Duration: March 2005 – December 2006.
Funding: \$4,901. **Ongoing**

FRGP 05-01 *"Floating Hedging."*
William Haynie – Reedville, Virginia
Duration: April 2005 - September 2006.
Funding: \$19,995. **Completed**

FRGP 05-03 *"Feasibility Study on one-year grow-out of triploid Crassostrea ariakensis."*
Virginia Seafood Council – Newport News, Virginia
Duration: May 2005 – July 2006.
Funding: \$50,435. **Completed**

FRGP 05-07. *"Value of Cownose Ray: Population Size, Harvesting, Processing and Market Acceptance."* Margaret Ransone, Kinsale, Virginia
Duration: April 2005 - December 2006.
Funding: \$21,250. **Ongoing**

The Consortium receives completion reports from FRGP projects, and results from them are being used to produce informational and educational publications for distribution to the industry. Additionally, project reports and results are presented at industry meetings and trade shows when appropriate.

Program Activity and Improvement: 2006

One Advisory Board meeting was held at the Virginia Institute of Marine Science during 2005. The meeting focused upon the review of proposals submitted in response to public solicitations. Additionally, the Advisory Board meeting provided feedback and input with which to enhance overall program effectiveness.

The Advisory Board again endorsed holding a series of public proposal development workshops at locations throughout coastal Virginia so that all potential participants may learn about the VFRGP. Such public meetings are held between the issuance of the call for proposals and the proposal due date. Additionally, numerous individual meetings are held with industry to discuss the VFRGP and specific project ideas.

Public Workshops and Solicitations: 2006



During 2006, two new Requests for Proposals ("RFP") were distributed to fishermen and other industry members. Along with the RFP, final VFRGP operating principles and guidelines, research applications

and guidelines, and procedural terms and conditions for grant recipients were included.⁶

Following issuance of the RFP announcements, a series of workshops was conducted to explain the grant program, including eligibility and funding priorities, how to complete the application form and where to go for more help when developing a grant proposal package.

Workshop locations for the two 2006 RFPs included Gloucester Point, Wachapreague and Warsaw.

Proposals prepared in response to a second RFP issued in 2006 are due to the Consortium on January 16, 2007, and public workshops related to this RFP were held at Gloucester Point and Wachapreague during November, 2006.

⁶ See Attachment C for Fishery Resource Grant Notification and Informational Package. Once annually notification is also sent to all licensed commercial watermen in the state by using the VMRC current commercial fishing license-holder database.

Project Review and Selection

As a result of the initial 2006 RFP announcements and follow-up workshops, fishing industry members submitted a total of 9 complete VFRGP proposals. The proposal topics were quite diverse, and each project was subjected to three expert reviews from outside the state. Once the expert reviews were received, a project evaluation and selection meeting was held, and the Advisory Board selected 5 new projects for funding or for further development and negotiation.

New Projects Approved: 2006

FRGP 2006-04. *“Aquaculture Training Program Needs Assessment.”*
S.Stickler Rappahannock Community College. Warsaw, Virginia
Duration: May 2006-March 2007.
Funding: \$6,700.

FRGP 2006-06. *“Developing an Alternative Fishery for Virginia Waterman.”*
Casey’s Seafood, Inc. Newport News, Virginia
Duration: May 2006-May 2007.
Funding: \$17,732.

FRGP 2006-07. *“Alternative Bait for Crab Pots.”* L. Haynie, Reedville, Virginia.
Duration: May 2006-May 2007.
Funding: \$27,000.

FRGP 2006-08. *“Project Management: Economic Analysis of C. Ariakensis.”*
Virginia Seafood Council – Newport News, Virginia
Duration: May 2006 –July 2007.
Funding: \$50,435

FRGP 2006-09. *“Assessment of Sturgeon Bycatch, Bycatch Mortality and Other Regulatory Discard Mortality in Virginia Winter/Spring Gill net Fisheries.”* Year II.
Kelly Place – Williamsburg, Virginia
Duration September 2005-August 2006.
Funding Year II: \$59,217

FISCAL SUMMARY STATEMENT

Funds appropriated by the Legislature for FY2005 totaled \$210,000. This amount, combined with the \$118,320 carried over from 2005, provided a total of \$323,320 for VFRGP activity in the 2006/2007 proposal cycle.

Program administrative costs were set at \$42,603 to cover a day-to-day program manager (located within the Marine Advisory Services at VIMS) and secretarial/clerical service functions required within the Consortium offices at the University of Virginia. Thus, the balance available for new projects in 2006 was \$280,717.

Of the \$280,717 available for new VFRGP project awards in 2006/2007, the five approved and initiated new projects totaled \$130,018. Thus, the VFRGP currently has a balance of approximately \$150,699 available for support of projects that will be evaluated for initiation in early 2007 as a result of the RFP issued in late 2006.

Funds remaining after the selection of new projects in the March 2007, proposal review will be carried forward, as called for in the enabling legislation, for use in combination with 2007 appropriated funds, to support new projects which will be submitted in response to a Request for Proposals that is to be released in summer/fall of 2007.

Virginia Fishery Resource Grant Program - Advisory Board

Chairman

(representing the Graduate Marine Science Consortium)

Dr. William DuPaul, Coordinator
Sea Grant Marine Advisory Program – VIMS
P.O. Box 1346
Gloucester Point, VA 23062

For VMRC:

Dr. James Wesson
Va. Marine Resources Commission
P.O. Box 756
Newport News, VA 23607-0756

For VIMS:

Dr. Roger Mann, Acting Director
Research & Advisory Services – VIMS
P.O. Box 1346
Gloucester Point, VA 23062

For the Aquaculture Association:

Mike Peirson, President
Cherrystone Aquatic Farm
P.O. Box 347
Cheriton, VA 23316

For Watermen's associations:

Marshall Cox
Box 254
Cape Charles, VA 23310

John Wyatt
1409 Walnut Drive
Chester, VA 23836

For More Information, Contact:

Dianne Roberts,
Virginia Institute of Marine Science
Virginia Sea Grant Marine Advisory Program
P.O. Box 1346
Gloucester Point, VA 23062
Phone (804) 684-7167
Fax (804) 684-7161
<http://www.vims.edu/adv/frg/>

NEWS RELEASE

October 25, 2006

MEETINGS FOR VIRGINIA WATERMEN TO LEARN ABOUT GRANTS AVAILABLE

The Virginia Graduate Marine Science Consortium is accepting applications to compete for approximately \$210,000 in the Fishery Resource Grant Program. The Virginia Legislature created the Fishery Resource Grant Program to “protect and enhance the Commonwealth’s coastal fishery resource through the awarding of grants.”

Basic to the program is the belief that people in the commercial fishing industry often have valid ideas to enhance and protect fisheries, but may lack the financial resources to experiment with innovations. The Fishery Resource Grant Program invests in such ideas generated by the fishing public through fair and competitive methods.

The legislation established four priority areas for funding, as follows:

- **New Fisheries Equipment and Gear** - focus on the development of less environmentally destructive gear, bycatch reduction, and more effective ways to handle catch.
- **Environmental Pilot Studies** - focus on ways to restore damaged habitat, create new habitat, prevent habitat impairment, or reduce impact from fishing or aquaculture activities.
- **Aquaculture/Mariculture** - focus on ways to develop criteria and assessment for permits, increase return from investment in culture activities, or introduce new species to the existing aquaculture list to broaden participation in commercial aquaculture.
- **Seafood Technology and Utilization** - develop value-added products from existing production, the utilization of underused or new fishery resources, develop models for total quality system management programs, or increase returns in the seafood industry by improving packaging and handling.

Eligibility - To be eligible for funding under the Fishery Resource Grant Program, each proposal must substantially involve Virginians who are actively involved in a fishing industry (which is defined as persons involved in commercial activities relating to fishery resources, aquaculture/mariculture, or the processing or handling of fishery products). Proposals submitted by persons not involved in a fishing industry must have 1) substantial involvement of Virginia fishers as defined above, and 2) include written endorsements from persons or organizations representing fishing industries supporting the project. The work can involve both inshore and offshore fisheries. All proposals submitted within the limits of the *Guidelines for Submission* will be accepted and reviewed for technical merit and the ability to address one or more of the specific priorities listed above.

Proposal Submission - To be considered for funding in this solicitation, a signed application must be delivered or mailed and received no later than 5:00 p.m., January 16, 2007. Mailed copies must be postmarked no later than 5:00 p.m., January 12, 2007. Mailed copies should be sent to: VFRGP – Attention Dianne Roberts, Virginia Sea Grant Program, Virginia Institute of Marine Science, P.O. Box 1346, Gloucester Point, VA 23062. Faxed proposals will not be considered. No more than 2 proposals per applicant are permitted.

A series of workshops will be held to explain the grants program, including eligibility and funding priorities, how to complete the application form, and where to go for more help when developing a grant proposal package. The time and location of these workshops are listed below:

Wednesday, November 29, 2006 from 6:30-8:30 pm
Director's Conference Room, VIMS, Gloucester Point, VA

Thursday, November 30, 2006, from 6:30-8:30 pm
Library, VIMS Eastern Shore, Wachapreague, VA

For more information or to receive a copy of the RFP and application forms, contact Dianne Roberts at the Virginia Sea Grant Program, VIMS, 804/684-7173. This notice is also available at: <<http://www.vims.edu/adv/frg>>.

###

Attachment C

Request for Proposals (RFP)

Virginia Fishery Resource Grant Program

Request for Proposals (RFP) 2006

Proposals will be Accepted from November 15, 2006 - January 16, 2007

The Virginia Sea Grant Program is accepting applications to compete for approximately \$200,000 in the Fishery Resource Grant Program. The Virginia Legislature created the Fishery Resource Grant Program to “protect and enhance the Commonwealth’s coastal fishery resource through the awarding of grants” in four areas: 1) new marine fisheries equipment or gear; 2) environmental pilot studies on issues including water quality and fisheries habitat; 3) aquaculture or mariculture of marine-dependent species; and 4) seafood technology.

A basic principle of the program is that people in the industry often have valid ideas for enhancing and protecting fisheries, but they lack the financial resources to experiment with innovations. The Virginia Fishery Resource Grant Program (VFRGP) invests in ideas generated by the fishing public through fair and competitive methods.

The legislation established the four priority areas noted above. Specific priorities within the four topic areas have been approved by the Virginia Fishery Resource Grant Program

Advisory Board and are noted below. All proposals submitted within the limits of the Guidelines for Submission will be accepted and reviewed for technical merit and the ability to address one or more of the specific priorities listed.

New Fisheries Equipment and Gear - This priority area seeks proposals that focus on the development of less environmentally destructive gear, bycatch reduction, more effective ways to handle catch and the development of information leading to fishery management plans for key species and groups.

Environmental Pilot Studies - This priority area seeks proposals that focus on ways to restore damaged habitat, create new habitat, prevent habitat impairment or reduce impact from fishing or aquaculture activities.

Aquaculture/Mariculture

- This priority area seeks proposals that focus on ways to develop criteria and assessment for permits, increase return from investment in culture activities or introduce new species to the existing aquaculture list to broaden the participation in commercial aquaculture.

Seafood Technology and Utilization - This priority area seeks proposals that develop value-added products from existing production, the utilization of underused or new fishery resources, develop models for total quality system management programs or increase returns in the seafood industry by improving packaging and handling.



Eligibility

To be eligible for funding under the Fishery Resource Grant Program, each proposal must substantially involve Virginians who are actively involved in a fishing industry (defined as persons involved in commercial activities relating to fishery resources, aquaculture/mariculture or the processing or handling fishery products). Proposals submitted by persons not involved in a fishing industry must have 1) substantial involvement of Virginia fishers as defined (above) and 2) written endorsements from persons or organizations representing fishing industries supporting the project.

Proposal Development

Competitive proposals are developed through discussion of ideas and partnering with interested groups and experts. Every applicant should consult with experts in the targeted priority area(s) and, where appropriate, develop a team of fishers and scientists to conduct the work. Sea Grant marine advisory agents and specialists can help assemble a team. Non-fishers could improve chances of funding by collaborating with persons in a fishing industry for proposal development and design and by involving fishers in the execution of the study. The Virginia Graduate Marine Science Consortium will be responsible for determining the eligibility of each proposal.

Application Forms

The application form at the end of this notice provides an outline for the proposal, and additional pages should be used for providing information in the sections listed. Applicants should pay particular attention to items 12-17. These sections should describe the problem and rationale for proposing the research project (12), present the goals and objectives of the

proposed work (13) and describe the work that is to be performed to meet the objectives (14). The next three sections should explain how the information gained from the work will help resolve the problem described (15), how the information developed will be transferred to others (16 - NOTE: it is not enough to say the data will be given to VMRC or another agency) and who will be responsible for

doing the work (17 - letters confirming participation should be obtained from all cooperators, including VMRC and/or Sea Grant marine advisory staff).

A series of workshops will be held to explain the grant program, including eligibility and funding priorities, how to complete the application form and where to go for more help when developing a grant proposal package. The

time and location of these workshops will be announced through press releases to the media and in selected newsletters. The workshop schedule also is included in this announcement.

Proposal Submission

To be considered for funding in this solicitation, a signed application must be delivered or mailed to the VFRGP office by **January 16, 2007**. Mailed copies must be postmarked no later than **January 12, 2007**. **Faxed proposals will not be considered.** Proposals must be delivered or mailed to:

VFRGP
Attention: Dianne Roberts
Virginia Sea Grant Program,
Virginia Institute of Marine Science
P.O. Box 1346
Gloucester Point, Virginia 23062



An applicant may submit no more than 2 proposals for this cycle.

To ensure competitive project selections, the VFRGP will subject all proposals to a series of reviews by a panel of experts from outside of Virginia. The VFRGP Advisory Board (see appended list of Advisory Board members) will also provide proposal evaluations to the selection process. The VFRGP will make proposal selection decisions and funding agreements will generally be effective during the second calendar quarter of 2007.

Funding Priorities

The following list of potential research ideas has been reviewed and approved by the FRGP Advisory Board and is provided as suggestions of the types of subjects that could be appropriate for proposals to the FRGP. This is not intended as a complete listing of all possible projects; nor are the topics listed in order of importance. All proposals received by the submission deadline will receive equal treatment during the review process.

Potential research topics or issues include but are not limited to the following:

I. New Inshore and Offshore Fisheries Equipment or Gear

1. Reduce bycatch by technology development and education.
2. Develop “environmentally friendly” gear.
3. Develop more effective/efficient mechanisms for handling catch.
4. Develop and evaluate mechanisms to release fish to increase their survival.
5. Determine amounts of hook-and-release mortality for important recreational species.

6. Increase efficiency/economic return of fishing.
7. Develop bait and bait substitutes.
8. Develop species-specific gear.
9. Develop information leading to Fishery Management Plans for key species and groups.
10. Develop new gear and/or improve current gear and/or document catch per unit effort (“CPUE”).

II. Environmental Pilot Studies

1. Develop mechanisms to restore damaged habitat or create new habitat.
2. Develop mechanisms to prevent habitat impairment.
3. Reduce habitat impact from fishing activities.
4. Develop recycling and collection programs for used fishing or aquaculture gear.
5. Develop ways to monitor and evaluate habitat alterations or the impacts of aquaculture practices such as moving of seaside shellfish to the bayside.
6. Determine environmental impact of fishing and processing activities.
7. Assess effects of water quality and habitat alteration on fisheries production.

III. Aquaculture/Mariculture

1. Increase return from investment in culture activities including the development of mechanical planting and harvesting technologies.

2. Examine the potential for culture of new species and/or deep-water culture techniques for existing species such as clams and oysters.
 3. Determine environmental impacts of aquaculture operations.
 4. Improve the efficiency of growth, feeding and nutrition.
 5. Demonstrate the best husbandry practices for potential growers.
 6. Develop mechanisms for a network for technical monitoring of waters for levels of spat fall, food, predators, etc.
 7. Market research for aquaculture products.
 8. Develop parameters for apprentice program and training for career aquaculturists.
 9. Assess feasibility of augmenting commercially and recreationally important species through hatchery release.
 10. Assess regulations that impact aquaculture/mariculture such as submerged aquatic vegetation protection.
 11. Assess the potential of shellfish aquaculture to enhance wild populations.
 12. Provide the opportunity for watermen, including minorities, to diversify their businesses through aquaculture.
- by improving packaging and handling.
 3. Develop models for total quality system management programs.
 4. Develop improvements in product quality.
 5. Develop mechanisms for reducing effluents and the environmental impacts.
 6. Develop alternative uses for processing byproducts.

Contacts

If you have an idea for a project, you may contact the following Virginia Sea Grant Marine Advisory Program representatives for assistance in writing your proposal or to request additional information. These people can also direct you to a research scientist who has expertise related to your project topic.

Sea Grant Marine Advisory Program contacts include:

Vicki Clark 804-684-7169
Marine Education

Bill DuPaul 804-684-7163
MAP Coordinator, Fisheries Development

Bob Fisher 804-684-7168
Fisheries / Seafood Technology

George Flick 540-231-9293
Seafood Technologies

Mike Jahncke 757-727-4861
Seafood Technology

Bob Lane 757-727-4861
Processing Engineering

Lee Larkin 804-684-7172
Marine Education

IV. Seafood Technology

1. Develop value-added products from existing or potential production such as cownose rays.
2. Increase returns in the seafood industry

attachment c cont...

Tom Murray 804-684-7190
Marine Business / Development

Mike Oesterling 804-684-7165
Fisheries; Finfish/shellfish Aquaculture

Mike Schwarz 757-727-4861
Finfish Aquaculture

Fishery Resource Grant Application Workshops, 2006

Two workshops will be held to explain the grant program, including eligibility and funding priorities, how to complete the application form and where to go for more help when developing a grant proposal package. The time and location of these workshops is listed below:

Wednesday, November 29, 2006
6:30 to 8:30 pm
Director's Conference Room, VIMS,
Gloucester Point, VA

Thursday, November 30, 2006
6:30 to 8:30 pm
Library, VIMS Eastern Shore, Wachapreague,
VA



Attachment D

Fishery Resource Grant Program

Principles of Operation

Authority: The Virginia Legislature ratified House Bill 1634 in 1999 providing \$300,000 to the Virginia Graduate Marine Science Consortium to “protect and enhance the state’s coastal fishery resources through the awarding of grants.”

Administration: The program will be administered by the Virginia Graduate Marine Science Consortium / Virginia Sea Grant College Program with input from an appointed Advisory Board. The Consortium, based upon rankings from reviews and consistent with priorities, will determine the grants to be awarded.

Priorities: The Advisory Board, with input from members of the fishing industry, develops priorities for each year in the following areas:

1. new fisheries equipment and gear;
2. environmental pilot studies, including water quality and fisheries habitat;
3. aquaculture/mariculture; and
4. seafood technology.

Eligibility: Each proposal shall include substantial involvement of active Virginia persons involved in a fishing industry. The term “fishing industry” includes persons involved in commercial activities related to fishery resources, aquaculture/mariculture, or handling of fishery products (i.e. seafood dealers and processors). A proposal generated by a person not involved in a fishing industry must have substantial involvement of Virginia fishers (as defined above) as well as written endorsements from persons

or organizations representing fishing industries in support of the project.

Technical Assistance: Following the establishment of priorities by the Advisory Board, Virginia Sea Grant shall hold workshops at coastal locations to solicit applications and to assist persons involved in fishing industries in writing proposals. A list of technical advisors will be available throughout the proposal writing process for assistance and participation.

Application: Applications must be completed based on the format provided for that purpose. Additional pages or supplemental materials (diagrams, photos, etc.) are acceptable if they better explain the project. Applications may include technical assistance as part of the project and funds may be budgeted to pay for this. Incomplete applications will not be accepted for consideration. Application forms listing information needed for a proposal are available from Virginia Sea Grant (see listing below for contact details).

Project Duration: Projects must reach conclusion within two years or less.

Geographic Distribution: To the extent practicable, grant funding will be distributed to applicants within Virginia counties that border the Atlantic Ocean or Chesapeake Bay and its tributaries to the extent of tidal influence.

Review Procedures: An anonymous outside peer review will be conducted for all applications. At least one of the reviewers shall be a person involved in a fishing industry. Applications shall be confidential until after funding decisions are made. Project quality will be assessed on the following criteria:

1. addresses a priority,
2. ability to protect or enhance fishery resources;



3. organization of a work plan leading to conclusions,
4. plan to extend findings to the fishing industry;
5. availability of expertise and its application;
6. familiarity and experience with the problem addressed;
7. innovation of approach and/or potential findings;
8. cost-effectiveness of implementation of results; and
9. reasonableness of budget for work proposed.

Based upon panel reviews and Advisory Board input, proposals will be recommended to the Marine Science Consortium. The Consortium will make all final decisions on grants, including the level of funding for each project.

Restrictions: No member of the Fishery Resource Grant Program staff or the Advisory Board or members of his/her immediate family may benefit financially from a grant. If a grant recipient from a prior year has failed to perform a grant project to the satisfaction of the Consortium, the principal applicant may be denied funding for a new application.

Grant recipients shall provide quarterly progress reports to the Consortium and shall submit invoices describing expenditures for each quarter. Twenty-five percent (25 %) of the total grant award shall be awarded on the start date and certified upon verification of expenditures. The final 25% of the total grant award shall be held until the recipient has completed and submitted a satisfactory final written report. The remainder of the grant award shall be distributed upon approval of quarterly reports, verification of expenditures and receipt of an invoice.

Submission: The signed original of the application should be submitted by mail the Fishery Resource Grant Program. Applications must be postmarked no later than 5 p.m. on the

due date noted in the Request for Proposals. Applications may also be delivered directly to the Virginia Sea Grant's office by the due date in the RFP. Late applications will not be considered for funding.

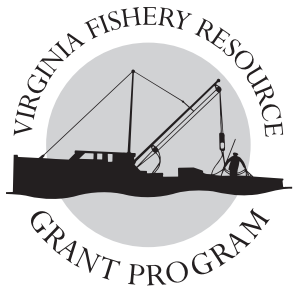
Questions concerning the Virginia Fishery Resource Grant Program may be directed to the following:

Bill DuPaul, Coordinator

Virginia Sea Grant Marine Advisory Program
phone 804-684-7163
fax 804-684-7161
email: dupaul@vims.edu
VIMS
Gloucester Point, VA 23062

Tom Murray, Fishery Grants Program Manager

phone 804-684-7190
fax 804-684-7161
e-mail: tjm@vims.edu
VIMS
Gloucester Point, VA 23062



VIRGINIA SEA GRANT

Fishery Resource Grant Program

Project Summaries: 2006

Contact: Thomas J. Murray

Virginia Institute of Marine Science

PO Box 1346

Gloucester Point, VA 23062

www.vims.edu/adv/frg

Sea Turtle Friendly Fish Trap

FRG project number 2004-07

CONTACT:

W. Emory Lewis, Jr., MD
165 Fleeton Point Circle
Reedville, VA 22539

What Did They Try to Accomplish, And Why Was This Important to Try?

Net traps are a common fishing method used on the Chesapeake Bay. A typical design includes a trap (or “pound”) for catching fish that have been guided into the trap by a long net wall known as a “net hedge” (or “net leader”). The problem with net hedges is that they can sometimes entangle sea turtles, resulting in their injury or even death. Because sea turtles are a protected species, federal regulations have sometimes imposed short-term bans on the use of net hedges. However, the trade off during these bans was that commercial net trappers could earn no income, and furthermore had to bear the cost of removing and later replacing their net hedges. Clearly, there would be a benefit to having an alternative hedge system that would allow fish trapping to continue without endangering sea turtles.

In this project, investigator Dr. W. Emory Lewis set out to test whether an innovative “bubble-barrier” hedge system could serve as a feasible alternative to traditional net hedges.

What Methods Were Used

Dr. Lewis and his team installed two net traps off Fleeton Point in the Chesapeake Bay. The first trap was equipped with a traditional net hedge. The second

trap was equipped with the experimental bubble-barrier hedge which used a “wall” of fine bubbles (instead of a net) to guide fish into the trap. To create a bubble barrier, the team used an air compressor and perforated tubing to create the “wall” of bubbles.

Dr. Lewis ran the two traps for approximately six weeks in July through September 2004, measuring the catch at each trap. To reduce any bias that might result from one net trap being in a better location than the other, the project team switched the hedge systems halfway through the experiment – transferring the bubble barrier hedge to the trap that had been using the net hedge, and moving the net hedge to the trap that had been using the bubble barrier.

What Did They Find?

The project team found that the bubble-barrier hedge appears to be a viable alternative to net hedges, with no observable difference in effectiveness for catching fish, and no clear cost advantage or disadvantage.

Both systems worked without problem during the test, and both delivered virtually identical fish catches, as measured by total value and by species distribution. During the experiment, no sea turtles were observed in the net hedge or either trap.

The team observed that the economics of operating



each system are different, but that it was not clear whether one system would be more or less expensive than the other. For example—according to the investigator’s estimates—the bubble barrier system would require a compressor with an amortized purchase cost of ~\$1,200 per year, plus \$3,000 per season in fuel costs (~\$750 per month for the four months per year that sea turtle populations would be at risk). In comparison, the net hedge system would require a net with an amortized purchase cost of ~\$3,500 per year, with several thousand dollars in additional costs for repairs, stakes, and installation. Depending on fuel prices, labor costs, and other material costs, either system could prove more economical.

What Resources Were Required?

Requested grant funding was \$34,900.

Disclaimer: this summary has been produced to share information provided by the project grantee. The Virginia Fishery Resource Grant Program neither endorses nor opposes the methods and findings included in this report. Please feel free to contact the project grantee directly for further information, or contact the Virginia Fishery Resource Grant Program for a copy of the complete grantee report and application.

The bubble-barrier hedge appears to be a viable alternative to net hedges, with no observable difference in effectiveness for catching fish, and no clear cost advantage or disadvantage.



Floating Hedging for Pound Netting

FRG project number 2005-01

CONTACT:

Mr. William H. Haynie
31 Shell Landing Road
Reedville, VA 22539

What Did They Try to Accomplish and Why Was This Project Important to Try?

Pound netting is a shallow-water fishing technique that uses walls of nets that extend from bay bottom to the water's surface. The most expensive part of the pound-netting setup is the "hedging", a net wall (held up by long poles) that leads the fish into the trap. A typical pound net requires more than 100 poles to keep the hedging in place. Over the course of a fishing season, the nets become worn and torn as they rub against the poles to which they are tethered. End-of-season repair requires \$15 or more (in labor and replacement netting) for the hedging at each pole, plus time to clear the poles of barnacles. Also, the poles themselves usually require replacement every two years – with the accompanying cost of labor, replacement, and disposal.

In this project, investigator William Haynie tested an innovative net design that would use floats instead of poles to hold up the net hedging, thus creating the potential for significant cost savings by reducing both installation and maintenance costs without reducing catch rates. In addition, the new design would also benefit the environment by reducing wood consumption and disposal, and by reducing fuel use with less time spent in installation and maintenance in the water.

What Methods Were Used?

In a traditional pound-netting system, the hedging net is held upright via tethers to pine poles which are placed every 6 to 8 feet along the net. In this project, Mr. Haynie eliminated these pine poles and instead used a series of ~360 floating buoys to hold up an 800-foot hedge which was used in conjunction with a standard pound-netting trap. Mr. Haynie installed this setup in the Chesapeake Bay one mile from another pound-netting trap which he equipped with traditional pole hedge. These traps were used through the 2005 season until Tropical Storm Ernesto destroyed both traps (along with all similar traps nearby).

What Did They Find?

In this trial, the floating-hedge design performed very well in comparison to the traditional pole design. Construction of the floating-hedge design saved ~\$1000 in labor and materials compared to the traditional design (~\$14,000 vs. ~\$15,000); and single-year maintenance of the floating-hedge design saved ~\$1,400 in labor and materials (~\$5,700 vs. \$7,100). These cost-savings appeared to be consistently achievable and did not reflect any extra efforts due to atypical wear patterns during the test season. The total fish catches for the floating-hedge and pole-hedge designs were comparable, with the pole-hedge system yielding \$17,400 for the season and the floating-hedge system yielding \$15,900.

Although the floating-hedge system did yield a smaller catch than pole-hedge system, it was not

clear whether any of that difference was attributable to the hedge system design, trap location, or chance. Thus, the lower fish yield in this single trial should not be considered an indication of systematically lower effectiveness for the floating hedge. More trials would be necessary to answer that question. However, many of the cost advantages to using the floating-hedge design did appear clear from this one trial.

What Other Observations and Conclusions Were Made?

Prior to the trial, the Mr. Haynie considered a concern that the floating hedging might break loose in high wind and become a hazard to boaters. To prevent this hazard, he built a redundant system of protections, using a set of 25-pound anchors as well as secondary poles driven into the bay bottom. Over the course of the season, all of the poles worked loose from the bay bottom but the anchors kept the hedging secure; thus, Mr. Haynie concluded that the weight anchors would be sufficient precaution.

Tropical Storm Ernesto uprooted both the floating-hedging and pole-hedging systems used in this experiment. However, this accident illustrated yet another advantage of the floating-hedge design, which proved much easier retrieve after the storm. Mr. Haynie was able to pull in the floating hedge easily by hand, but had to use a barge and crane (at significant time and expense) to recover the pole-hedge which had become a tangle of nets and poles.

Prior to Tropical Storm Ernesto, normal tide and weather conditions did not affect the floating hedging any differently from the traditional pole-hedging.

Mr. Haynie also noted that the new design would save wear and tear costs from sun damage to the hedging, by keeping more of the hedging slightly below the surface of the water for less exposure to direct sun. The amortized savings were estimated to be ~\$450 per year.

What Resources Were Required?

The requested funding was \$19,995.

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Experimental floating hedge (foreground) in use with a standard net trap



Traditional pole hedge (foreground) in use with a standard net trap.

“The floating hedging proved itself even more efficient than I thought [and] will be the difference in me pound netting for years to come instead of retiring from the fishing industry.”

Aquaculture Training Needs Assessment and Course Assessment

FRG project number 2006-04

CONTACT:

Shawn Stickler, PhD
Rappahannock Community College
52 Campus Drive
Warsaw, VA 22572

What Did They Try to Accomplish, And Why Was This Important to Try?

In recent years, commercial shellfish aquaculture operations in Virginia have grown in both size and number, in part because of reduced wild oyster harvests. Commercial watermen have expressed strong interest in more education to learn how to culture oysters as a way of preserving a shellfish economy for themselves and others. However, no formal educational programs have been available through the Commonwealth of Virginia; the nearest programs are in North Carolina and Georgia.

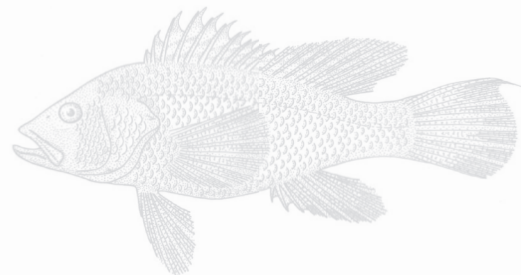
In this project, Shawn Stickler, PhD, set out to assess what types of training programs would best meet the needs and opportunities of Virginia watermen, consumers and the Commonwealth as a whole. Options to consider could include anything from individual seminars, to longer courses, to full certificate or degree programs.

In the first half of this project (discussed in this summary), Dr. Stickler focused on assessing the training needs and opportunities. In the second half of this project, he plans to examine options for actual course development.

What Methods Were Used and What Did They Find?

To assess training needs and options, Dr. Stickler conducted a written survey of shellfish aquaculture stakeholders including commercial shellfish growers and processors, students, and Commonwealth staff. In addition, the investigator spoke with staff at aquaculture programs in North Carolina, Delaware, and Massachusetts.

Based on the survey responses, interviews and other observations, Dr. Stickler concluded that “there is clearly both a need and an opportunity for formal aquaculture training and outreach programs in Virginia.” Specifically, he recommended a two-part approach to aquaculture training in Virginia. The first part would be an increase in outreach and extension services by state agencies such as the Virginia Institute of Marine Science (VIMS) and the Virginia Marine Resource Commission (VMRC). The second would be the creation of an academic program offering aquaculture technology certificates or degrees from a coastal community college such as Rappahannock Community College.



What Other Observations and Conclusions Were Made?

With regard to the recommendation for increased outreach and extension, Dr. Stickler noted that VIMS and VMRC are already involved with many outreach efforts – working with industry and the public to promote aquaculture, demonstrate new techniques and technologies, and provide forums for stakeholder to collaborate and share what they know. He recommended that Virginia further these efforts through more direct collaboration with industry facilities and by providing additional technical support to individuals, as agricultural extension agents currently work with farmers through the Virginia Tech Extension Office. Dr. Stickler also encouraged more participation from the shellfish industry, itself, specifically through the formation of a sustainable Virginia Shellfish Growers' Association, which he is currently helping to re-start.

With regard to the recommendation for a formal academic program, Dr. Stickler cited his survey respondents' need for technicians trained in hatchery management, algal culture, and basic aquaculture skills. While much of the training would come on the job, the industry would grow faster with a ready supply of workers schooled through the

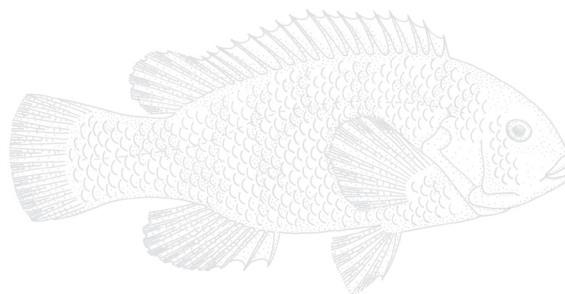
Commonwealth. Dr. Stickler has prepared a draft curriculum for such a school program.

In the state-run aquaculture programs of North Carolina, Massachusetts and Delaware, several dozen students were typically enrolled at any given time. It was noted that the programs in Massachusetts in Delaware were either cancelled or being phased out; however, programs in North Carolina are both strong and growing. Key features of the North Carolina program include collaboration with industry, financial support via research grants and product sales, and an emphasis on student-directed learning. Faculty at the North Carolina programs expressed an interest in collaborating with Virginia if its program moves forward.

What Resources Were Required?

Requested grant funding was \$6,700.

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Feasibility Study on One-Year Grow-Out of Triploid *Crassostrea Ariakensis*, 2005-2006

FRG project number 2006-08

CONTACT:

Michael Congrove
Virginia Seafood Council
PO Box 1346
Gloucester Point, VA 23062

What Did They Try to Accomplish, And Why Was This Important to Try?

In 1995, the Commonwealth gave both permission and impetus for the Virginia Institute of Marine Science (VIMS) to begin evaluating non-native oyster species as one part of a broad effort to revitalize the Virginia shellfish industry. Over the following decade, VIMS and other organizations began an extensive evaluation *Crassostrea ariakensis* (*C. ariakensis*), a promising non-native oyster.

In evaluating this new species, regulators and experimenters were required to recognize and work with the known risks of introducing a non-native species to the area, namely: the potential of the non-native species to have unforeseen, undesirable and hard-to-mitigate effects on the local environment. One key strategy for reducing these risks with *C. ariakensis* was to work with triploid specimens which are genetically sterile and therefore non-reproducing. Unfortunately, existing methods for generating triploid oysters are not perfect and leave ~0.1 percent of the oysters diploid and potentially capable of reproduction. For this reason, regulators have required experimenters to further reduce the risk of reproduction by restricting open-water trials to one grow-out season per set of oysters. This practice would further reduce the likelihood that any diploid oysters would become mature and spawn.

Working within this restriction, investigators at the Virginia Seafood Council thought it appropriate to examine an upside possibility, which was to ask whether *C. ariakensis* could be grown out to marketable size within the one-year period to which these trials are limited. From an economic standpoint, this possibility would have great appeal since the time between oyster planting and harvest would be only one year, in contrast to the two or three year grow-out cycle required for the previously dominant species, *C. virginica*.

What Methods Were Used and What Did They Find?

For this project, the Virginia Seafood Council planned a trial to test *C. ariakensis* growth in one year, June 2005 to June 2006. The test would be run in ten different sites on the Chesapeake Bay, using different oyster grow-out methods including Taylor floats, bags on racks, long-lined bags, and off-bottom cages. As part of the experiment, *C. virginica* oysters would be grown in parallel with the *C. ariakensis* to observe how the two species compared, and to help detect any unusual conditions or events at individual test sites.



What Did They Find?

The investigators observed that grow-out performance of *C. ariakensis* was excellent at nearly all sites, despite the fact that logistical issues cut the trial's growth-period down to ten months – two months less than the full year intended. Despite the abbreviated grow-out season, ~70 percent of the 1,000,000 oysters deployed were harvested and sold, for an average profit of ~\$6,800 at each of the ten trial sites. Given this success rate after only ten months, an even greater yield could be expected in regular seasons with a full twelve-month grow-out.

What Other Observations and Conclusions Were Made?

In comparing *C. ariakensis* to *C. virginica*, the investigators noted that on the plus side, *C. ariakensis* had an “exceptional meat to shell ratio”. Conversely, *C. ariakensis* exhibited a much shorter shelf life than *C. virginica*. Taken together, these characteristics suggested that shucking (instead of live sale) would be the preferred method for marketing *C. ariakensis*. In fact, the four most profitable sites for this trial were the ones in which operators shucked all their oysters, instead of selling some or all unshucked.

In summary, the investigators at the Virginia Seafood Council highly recommend further research regarding the use of *C. ariakensis* as an aquaculture oyster in the Commonwealth.

What Resources Were Required?

Requested grant funding was \$55,217.

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Despite the abbreviated grow-out season, ~70 percent of the oysters deployed were harvested and sold, at an average profit of ~\$6,800 at each of the ten trial sites.

Assessment of Sturgeon Bycatch, Bycatch Mortality and Other Regulatory Discard Mortality in Gill Net Fisheries

FRG project number 2006-09

CONTACT:

Kelly V. Place
213 Waller Mill Road
Williamsburg, VA 23185

What Did They Try to Accomplish and Why Was This Project Important to Try?

The prevention of Atlantic sturgeon bycatch is an established priority for Virginia fisheries. In examining options to reduce sturgeon bycatch, regulatory agencies have paid particular attention to anchored gill net fishing, which (due to its widespread use) exhibits more sturgeon bycatch in Virginia than any other fishing technique. One of the largest uses of anchored gill nets is fishing for striped bass in the spring and fall. Therefore, it has been a priority to examine the interaction of Atlantic sturgeon with striped bass fisheries, and to collect data on bycatch, bycatch mortality, and other factors related to Atlantic sturgeon survival.

Research completed in 2005 indicated that Virginia's striped bass fishery did interact with sturgeon, but that these interactions were relatively infrequent and had resulted in very low sturgeon mortality. However, change to the striped bass fishery regulations (e.g., smaller mesh sizes) for 2006 appeared to pose a risk for increased bycatch of sturgeon and other non-targeted species including American shad, and spiny and smooth dogfish.

Recognizing that an inadvertent increase in sturgeon bycatch could threaten continued fishing of striped bass and other species, Virginia commercial fishermen have specifically requested the continued

collection of sturgeon bycatch data, to ensure that the best possible information is available for creating future fishery regulations.

For this project, investigator Kelly Place continued the data collection efforts initiated in 2005, among them:

- To evaluate sturgeon interaction with striped bass and other fisheries in the spring and fall of 2006.
- To determine variation and distribution of mesh sizes and gauges in current industry use, and to determine the effects of these variables on bycatch composition.



- To determine essential sturgeon habitat and spawning grounds through collection, tagging, and recording of sturgeon; while also collecting information on abundance, mortality, and DNA.
- And, lastly, to engage Virginia's commercial fishermen in the proactive collection of vital data (and, potentially, genetically diverse brood stock) in an effort to restore Atlantic sturgeon to greater abundance.

What Methods Were Used and What Did They Find?

The project team collected data through various means, including:

- A sturgeon catch reward program in which watermen recorded information about the equipment in use at the time of the bycatch, took DNA samples of the sturgeon, and also recorded a photograph of each fish.
- Placement of observers on commercial boats, to monitor bycatch data.
- Fishing for sea bass (in non-commercial efforts) with nets specifically designed to test the bycatch rates of various mesh sizes and gauges, and fishing specifically for sturgeon for tagging and other data collection.

During the 2006 spring and fall seasons, the project investigators were highly successful in obtaining overall bycatch data as well as DNA and migration data for individual sturgeon. The collected data are currently being added to the existing body of knowledge on sturgeon bycatch and species health,

which will help scientists and regulators make stronger regulatory recommendations that will enhance overall fishery health while preserving the viability of a vibrant fishing economy. It should be noted that each season's data collection provides important but limited data, because the combination of sparse sturgeon populations and determined efforts to keep bycatch as low as possible combine to yield relatively small bycatch counts. Thus, it will important to continue this data collection into 2007 and beyond.

What Other Observations and Conclusions Were Made?

The investigators noted that regulations for 2006 have prompted the use of smaller mesh sizes, with the positive intention of reducing the average size of striped bass harvested. However, the investigators felt that these regulations might inadvertently harm the sturgeon population by increasing bycatch of juvenile sturgeon, which spend more time in estuarine habitats. In any case, the collection of better data is hoped to be a useful effort that will reduce unintended harm.

What Resources Were Required?

Requested grant funding was \$52,039.

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VIRGINIA SEA GRANT
Fishery Resource Grant Program

Appendix II — Application Materials, 2006

Fishery Resource Grant Program

Application Guidelines

1. Provide a title that summarizes the project.
2. Give the full name of the applicant; it will be used to issue payments for the project.
3. Give the name of your company or corporation if applicable, or the institution of your employment. If self-employed, say so.
4. Applicant's complete telephone number including area code.
5. Mailing address for correspondence and mailing payments, etc.
6. Which priority are you addressing? The attached listing gives this year's priorities under the four-program areas equipment/gear, environment, aquaculture and seafood.
7. Give fishing license or permit number(s), if applicable.
8. Social security or federal ID number is required for grant payments.
9. Total amount of funding requested (see budget section).
10. Give the date that you plan to begin work and the date that we can expect a completion report.
11. List all other personnel involved in the project and their affiliation. This includes all those who have a major responsibility for some aspect of the work.

**** Use additional pages as needed to fully answer items 12 through 18 ****

12. Describe the nature of the situation or problem that your proposed work will address.
13. What is the purpose of your proposed work?
14. **This section is very important!** Please explain how, where and when you will conduct each work task. Explain how tests will be run and how the data will be analyzed. Describe the tests you plan to conduct, the surveys you will make and/or plans for making something. Your methodology must withstand questions about its validity and/or potential to yield the results you need to solve the purpose of your work (described in number 13 above).
15. Describe how the outcome of your proposed work will help address the problem described in number 12 above.

Appendix II

16. Describe how you plan to get the results of your work to other members of the fishing industry for their use. It is not enough to just discover something. It must also be usable. If you are going to rely on someone else to extend the results, be sure to have an agreement and arrange to cover those expenses.
17. Who is going to be responsible for what? Each participant (including the applicant) must be responsible for some part of the work. You must have letters of endorsement from other participants to confirm their participation in the project. For example, if personnel from VIMS will conduct the statistical analysis, then an agreement letter from VIMS is required.
18. Give a brief statement describing the experience of each participant and the applicant that qualifies them to do the tasks outlined above.
19. Carefully compute the funds needed (rounded to the nearest dollar) for all of the work described in the proposal. Be sure to include any subcontractors (budget item e.) for lab work, consultants, extension, services, etc. The funding for these grants does not permit indirect costs (overhead). Be sure to check your budget total figure.
20. Please justify the budget figures. For example: "We will need a deckhand for 150 hours @ \$7/hour," or "We will need to design and build a trawl that requires \$1,200 for materials," etc.

- **Be sure to sign the application! Applications without a dated signature will be rejected as incomplete.**

- **Mail the signed original to: VFRGP –Attention Dianne Roberts, Virginia Sea Grant Program, Virginia Institute of Marine Science, P.O. Box 1346, Gloucester Point, Virginia 23062.**

- **Applications must be postmarked no later than January 12, 2007. Applications may be delivered to the VFRGP office only until 5:00 p.m. on January 16, 2007. Late proposals will be returned to the applicant without being considered.**

- **If you need assistance completing the grant application, a resource list is available from the Virginia Sea Grant Program Marine Advisory Program office at VIMS (phone: 804-684-7190; fax: 804-684-7161). This notice and application form is available at the website below: <http://www.vims.edu/adv/frg/index.html>**

Appendix II

Virginia Fishery Resource Grant Program – Advisory Board

Chairman (representing the Virginia Sea Grant Program)

Dr. William DuPaul, Coordinator
Sea Grant Marine Advisory Program
VIMS
Gloucester Point, VA 23062

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For VIMS

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For the Aquaculture Association

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For the Watermen's Associations

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Chester, VA 23836

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fax:
email: jwyatt@aol.com

Fishery Resource Grant Program

Application

1. Project title: _____
2. Name of applicant: _____
3. Company (if applicable): _____
4. Telephone: _____
5. Address: _____

6. Priority addressed by project (see list): _____
7. Fishing license/permit number(s): _____
8. Social security or federal tax ID number: _____
9. Funding requested: _____
10. Project dates: beginning _____ completion _____
11. Other project participant(s), affiliation, address and phone:

[Note: Use additional pages as needed to respond to the items below.]

12. Give a brief summary of the situation or problem to be addressed.

Appendix II

13. What is the purpose (objectives) of the project?
14. What work do you intend to do, and how do you plan to accomplish it?
15. Explain how the expected results will address the problem and/or enhance fishery resources.
16. Explain how the expected results will be made available to the fishing industry.
17. Briefly outline who will be responsible for each aspect of the work plan (attach letters from cooperators outlining their participation).
18. Briefly summarize the qualifications of each participant.

Appendix II

19. Provide project budget and cost justification.

ITEM/CATEGORY	AMOUNT
a. Personnel Costs (time x unit cost)	
b. Travel (trip or mileage x unit cost)	
c. Supplies	
d. Equipment (items more than \$500)	
e. Contractual Services (itemize)	
f. Other Costs (itemize)	
g. Total Project Costs	

20. Provide budget item justification and/or explanations.

Applicant Signature: _____ Date: _____